

2. SOME OBSERVATIONS ON BEHAVIOUR OF RODENTS DURING SOLAR ECLIPSE

(With a text-figure)

Behaviour of five rodent species was studied during the solar eclipse which occurred on the 16th February, 1980, from 2.28 p.m. to 4.49 p.m. the greatest phase being at 3.42 p.m. at Jodhpur. Rodents were studied in the field, in the rattery and in cages kept in open sun and in the laboratory. For the sake of comparison, the rodent behaviour was also observed during the same period on two days prior to the eclipse in identical situations. All the activities were recorded on a time scale (Fig. 1).

Behavioural patterns of the Indian gerbil, *Tatera indica indica* (nocturnal), the Desert gerbil *Meriones hurrianae* (diurnal), the House rat, *Rattus rufescens* (nocturnal) and the Soft-furred field rat, *Rattus meltda pallidior* (nocturnal) remained conceivably unchanged between the 'control' days and on the eclipse day.

Pillai (1956) also studied the effect of solar eclipse (which occurred on 14 December, 1955) on the zoo animals at Trivandrum. He found that animals either captive or free display little or no responsive behaviour.

However, noticeable changes in the periodicity of a number of behavioural activities were observed in case of the diurnal Bush rat, *Golunda ellioti gujerati*. Two males and two females were maintained in laboratory cages in the sun. The duration and/or frequency of almost all the activities except grooming declined significantly when compared with those on the prior days (Table 1).

Though the difference in duration of feeding increased on the eclipse day but it was not statistically significant. However, a significant shift of this activity from 3.45 to 4.30

p.m. on ordinary days ($P < .02$) to 2.15 to 3.15 p.m. ($P < .001$) on the eclipse day occurred indicating that rodents fed before the maximum phase of eclipse and ceased their feeding activity thereafter.

Another significant change observed was in

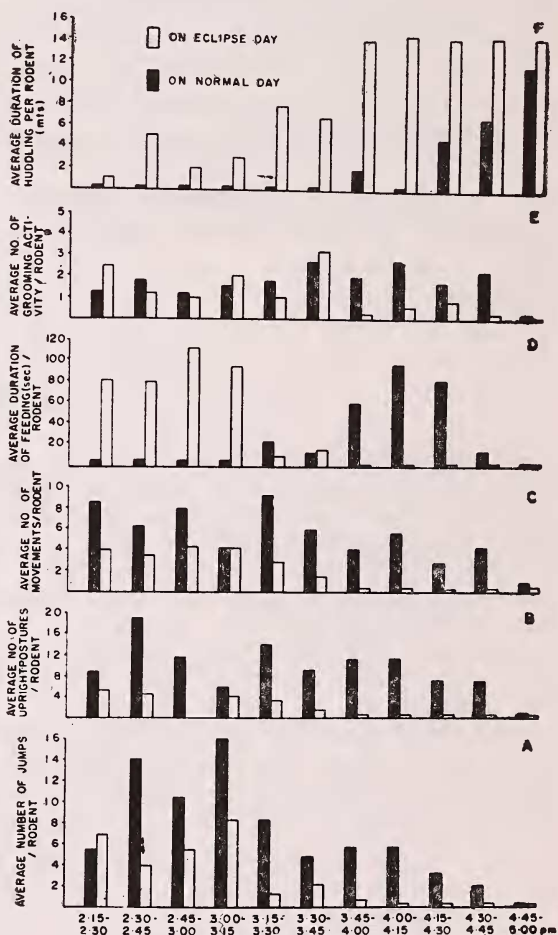


Fig. 1. Comparison between various parameters of activities performed by *Golunda ellioti* on eclipse and normal day from 2.15 to 5.00 p.m.

MISCELLANEOUS NOTES

TABLE 1

FREQUENCY AND OR DURATION OF VARIOUS BEHAVIOURAL ACTIVITIES OF *Golunda ellioti* ON THE ECLIPSE DAY

Activity	Mean frequency/duration of activity		Level of probability
	normal day	eclipse day	
Jumps on the cage wall	7.0 \pm 1.50	2.63 \pm 0.92	P < 0.02
Exploration (upright postures)	9.63 \pm 1.45	2.20 \pm 0.67	P < 0.001
Movements in the cage	5.22 \pm 0.79	1.70 \pm 0.60	P < 0.001
Total duration of feeding (in sec.)	27.99 \pm 10.64	37.27 \pm 14.00	(NS)
Grooming (in numbers)	2.15 \pm 0.33	1.13 \pm 0.31	P < 0.05
Huddling (in min.)	2.36 \pm 1.20	9.03 \pm 1.74	P < 0.01

their huddling behaviour which on the eclipse day increased considerably ($P < 0.01$). It was observed at 2.15 p.m.; prior to the beginning of eclipse and after 3.15 p.m. huddling gradually increased and interestingly from 3.45 p.m., the greatest phase of the eclipse, to 5 p.m. the animals remained huddled over one another in the corner of the cage, almost without performing any vital activity. Such a behaviour was not observed on earlier days. During the maximum phase of eclipse (3.30-3.45 p.m.) in contrast to decline in other activities, grooming was performed at a higher frequency and faster rate (Fig. 1).

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It is interesting to observe that only *G. e. gujerati* behaved in a different manner during eclipse whereas there was no apparent change in any other rodent species.

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3. APPARENT ALLOMATERNAL CARE IN AN INSECTIVOROUS BAT *HIPPOSIDEROS SPEORIS*

Analyses of mother-infant relations pave the way for a better understanding the extent of social organization in bats (Bradbury 1977). The process of mother-infant relationship be-

comes a little complex in the case of bats, since their food and feeding habits necessitate long foraging sojourns away from the roost every night. Hence in most cases the mothers leave